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CORONARY ARTERY CALCIUM AND CARDIAC COMPUTED TOMOGRAPHY IN LOS ANGELES COUNTY FIREFIGHTERS WITH ABNORMAL STRESS TESTS

ACC Poster Contributions
Ernest N. Morial Convention Center, Hall F
Monday, April 04, 2011, 3:30 p.m.-4:45 p.m.

Session Title: Further Advances in Noncoronary CT Applications
Abstract Category: 37. CT Coronary Calcium and Noncoronary CT Applications
Session-Poster Board Number: 1129-207

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Objective: Our objective was to determine whether Los Angeles county firefighters have higher coronary artery calcium (CAC) scores and increased atherosclerosis as determined by 64-slice cardiac multi-detector computed tomography.

Background: Firefighters are known to have an elevated rate of sudden cardiac death compared with the general population. It is unclear whether this finding is related to underlying cardiovascular risk factors or if firefighting inherently carries additional risk.

Methods: 647 asymptomatic firefighters evaluated as part of a wellness protocol were referred for cardiac multi-detector computed tomography to evaluate an abnormal exercise treadmill test. They were matched by age and cardiovascular risk factors with 2533 asymptomatic individuals undergoing cardiac computed tomography for an abnormal electrocardiogram or exercise treadmill test. CAC and prevalence of obstructive coronary artery disease by vessel were derived.

Results: 49 percent of firefighters had detectable CAC compared with 43% of controls (p=0.015). Although lesions were most prevalent in the left anterior descending artery (LAD) in both groups, more firefighters had any LAD stenosis when compared with controls (42 percent among firefighters compared with 28 percent in controls, p<0.0001). Firefighters were more likely to have left main coronary artery lesions as well (7 percent compared with 3.7 percent, p<0.0001). Firefighters also had significantly higher total CAC scores when compared with controls (66 +/- 8 in firefighters compared with 33 +/- 4, p<0.001). Multivariate logistic regression showed that, even after adjustment for conventional coronary artery disease risk factors, firefighting status was positively associated with the presence of LAD lesions (OR 1.2, 95% CI 1.12-1.29, p< 0.0001).

Conclusions: Our data suggest that asymptomatic firefighters have more atherosclerosis and CAC than matched controls. Given the high prevalence of sudden cardiac death among firefighters, these findings may have important implications for more aggressive firefighter screening and treatment for asymptomatic coronary artery disease.